

Friday Night (under the) Lights...

2021



Happy Friday...

I hope everyone is doing well tonight. If you happen to live in the South, you're getting ready for some wild winter weather this weekend. I live in Austin and apparently we may get some snow.

We're doomed. We close schools if you have to wear more than a sweater...

And a Happy Birthday to Elvis Presley today. If he were still alive, he would be 86 today. I didn't realize it but Elvis was an identical twin. His brother was delivered 35 minutes before him and was unfortunately a stillborn. In high school, Presley received a C in music. When his music teacher told him he had no aptitude for singing, he brought in his guitar and sang recent hit, "Keep Them Cold Icy Fingers Off Me". A classmate later recalled that the teacher agreed that Elvis was right when he said that she didn't appreciate his kind of singing.

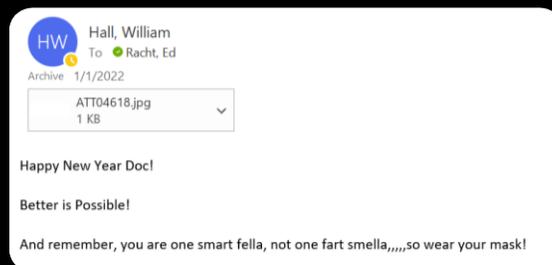
That really has nothing to do with tonight's FNuL but I thought I'd share it anyway...

We'll just call it a "shiny object". The fact that you're reading this means you love shiny objects. And.They.Are.Everywhere.

So, before I go any further, a note of thanks to all of you who sent me a note after last week's FNuL. It helps me stay connected in a world that's pretty spread out.

Plus, I get good feedback that I can share with you.

Case in point – Thanks to Bill Hall for his nice compliment related to my Epilogue last week on passing gas... 😊



- **I knew I would finally get it...**

So... I got the first dose of the COVID19 Vaccine on Tuesday. I got it as part of the joint vaccine initiative with the Arlington Fire Department and AMR Arlington EMS. For the record, the process that was set up at the Arlington Convention Center was phenomenal. It was clean, organized and physically distanced. Everyone was wearing masks and people were moved through rapidly and monitored for 15 minutes post vaccination. Dr. Cindy Simmons, our Arlington Medical Director and the Arlington County Public Health Authority, was the clinical mastermind supporting the entire process. I arrived at about 3:30 that day and they had already vaccinated 850 people (only 1 "reaction", by the way which was mild).

But I have to say - It was such a surreal event for me – I was a bit surprised by how I felt.

I've really been looking forward to the time when I could be vaccinated. I've spent just about every day in the past 4 months following the progress of the vaccine developments, reviews, approvals and deployment. I knew there would come a time when I would personally have to make a decision for ME.

That needle was going into MY arm. That vaccine was approved QUICKLY. It is a relatively NEW method of vaccine development. AND – I may end up having a microchip injected and the Russians will know where I am all the time... Or I'll get Bell's Palsy. Or my genome will be altered because the vaccine uses Messenger RNA.

I have the same need as you do to clearly understand this new vaccine and, maybe even more important, to *trust* that the information provided is based on science – Not politics or someone's best guess or a need to "check some box" during this unprecedented time.



So tonight, I want to try and summarize the important characteristics of the two vaccines that are currently available for us – The Pfizer and Moderna vaccines.

There are 4 key publications that summarize the data from the vaccines – two New England Journal of Medicine articles and the two FDA approval submissions. In addition, the CDC has established a well-done website that addresses specific questions as they arise - <https://www.cdc.gov/vaccines/covid-19/info-by-product/index.html>. I'd encourage you to visit the website and wander through the topics. You can also enter your email in the bottom of the page to get updates related to the vaccines (do it now – shiny objects are always ahead..).

I think it's critically important to remember that the New England Journal of Medicine peer review process requires a rigorous review of the data submitted by experts in areas associated with study design, statistics, infectious diseases, epidemiology, pharmacology and ethics. These individuals come from diverse backgrounds and are monitored for affiliation with any organization or effort that could be perceived as a conflict.

Why do I bring that up? Because it helps validate the integrity of the process. Multiple minds, multiple backgrounds – checks and balances... It helps create *trust* in the data. There is indeed, strength in numbers...

Both papers are available in their entirety from the NEJM website. They were published last week. I've posted the abstracts below...

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Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine

Fernando P. Polack, M.D., Stephen J. Thomas, M.D., Nicholas Kitchin, M.D., Judith Absalon, M.D., Alejandra Gurtman, M.D., Stephen Lockhart, D.M., John L. Perez, M.D., Gonzalo Pérez Marc, M.D., Edson D. Moreira, M.D., Cristiano Zerbini, M.D., Ruth Bailey, B.Sc., Kena A. Swanson, Ph.D., Satrajit Roychoudhury, Ph.D., Kenneth Koury, Ph.D., Ping Li, Ph.D., Warren V. Kalina, Ph.D., David Cooper, Ph.D., Robert W. Frencq, Jr., M.D., Laura L. Hammit, M.D., Özlem Türeci, M.D., Haylene Nell, M.D., Axel Schaefer, M.D., Serhat Ünal, M.D., Dina B. Tresnan, D.V.M., Ph.D., Susan Mather, M.D., Philip R. Dormitzer, M.D., Ph.D., Uğur Şahin, M.D., Kathrin U. Jansen, Ph.D., and William C. Gruber, M.D., for the C4591001 Clinical Trial Group*

ABSTRACT

BACKGROUND

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and the resulting coronavirus disease 2019 (Covid-19) have afflicted tens of millions of people in a worldwide pandemic. Safe and effective vaccines are needed urgently.

METHODS

In an ongoing multinational, placebo-controlled, observer-blinded, pivotal efficacy trial, we randomly assigned persons 16 years of age or older in a 1:1 ratio to receive two doses, 21 days apart, of either placebo or the BNT162b2 vaccine candidate (30 µg per dose). BNT162b2 is a lipid nanoparticle–formulated, nucleoside-modified RNA vaccine that encodes a prefusion stabilized, membrane-anchored SARS-CoV-2 full-length spike protein. The primary end points were efficacy of the vaccine against laboratory-confirmed Covid-19 and safety.

RESULTS

A total of 43,548 participants underwent randomization, of whom 43,448 received injections: 21,720 with BNT162b2 and 21,728 with placebo. There were 8 cases of Covid-19 with onset at least 7 days after the second dose among participants assigned to receive BNT162b2 and 162 cases among those assigned to placebo; BNT162b2 was 95% effective in preventing Covid-19 (95% credible interval, 90.3 to 97.6). Similar vaccine efficacy (generally 90 to 100%) was observed across subgroups defined by age, sex, race, ethnicity, baseline body-mass index, and the presence of coexisting conditions. Among 10 cases of severe Covid-19 with onset after the first dose, 9 occurred in placebo recipients and 1 in a BNT162b2 recipient. The safety profile of BNT162b2 was characterized by short-term, mild-to-moderate pain at the injection site, fatigue, and headache. The incidence of serious adverse events was low and was similar in the vaccine and placebo groups.

CONCLUSIONS

A two-dose regimen of BNT162b2 conferred 95% protection against Covid-19 in persons 16 years of age or older. Safety over a median of 2 months was similar to that of other viral vaccines. (Funded by BioNTech and Pfizer; ClinicalTrials.gov number, NCT04568728.)

The authors' affiliations are listed in the Appendix. Address reprint requests to Dr. Absalon at Pfizer, 401 N. Middletown Rd., Pearl River, NY 10965, or at judith.absalon@pfizer.com.

*A complete list of investigators in the C4591001 Clinical Trial Group is provided in the Supplementary Appendix, available at NEJM.org.

Drs. Polack and Thomas contributed equally to this article.

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ORIGINAL ARTICLE

Efficacy and Safety of the mRNA-1273 SARS-CoV-2 Vaccine

L.R. Baden, H.M. El Sahly, B. Essink, K. Kotloff, S. Frey, R. Novak, D. Diemert, S.A. Spector, N. Roupheal, C.B. Creech, J. McGettigan, S. Khetan, N. Segall, J. Solis, A. Brosz, C. Fierro, H. Schwartz, K. Neuzil, L. Corey, P. Gilbert, H. Janes, D. Follmann, M. Marovich, J. Mascola, L. Polakowski, J. Ledgerwood, B.S. Graham, H. Bennett, R. Pajon, C. Knightly, B. Leav, W. Deng, H. Zhou, S. Han, M. Ivarsson, J. Miller, and T. Zaks, for the COVE Study Group*

ABSTRACT

BACKGROUND

Vaccines are needed to prevent coronavirus disease 2019 (Covid-19) and to protect persons who are at high risk for complications. The mRNA-1273 vaccine is a lipid nanoparticle-encapsulated mRNA-based vaccine that encodes the prefusion stabilized full-length spike protein of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes Covid-19.

METHODS

This phase 3 randomized, observer-blinded, placebo-controlled trial was conducted at 99 centers across the United States. Persons at high risk for SARS-CoV-2 infection or its complications were randomly assigned in a 1:1 ratio to receive two intramuscular injections of mRNA-1273 (100 μ g) or placebo 28 days apart. The primary end point was prevention of Covid-19 illness with onset at least 14 days after the second injection in participants who had not previously been infected with SARS-CoV-2.

RESULTS

The trial enrolled 30,420 volunteers who were randomly assigned in a 1:1 ratio to receive either vaccine or placebo (15,210 participants in each group). More than 96% of participants received both injections, and 2.2% had evidence (serologic, virologic, or both) of SARS-CoV-2 infection at baseline. Symptomatic Covid-19 illness was confirmed in 185 participants in the placebo group (56.5 per 1000 person-years; 95% confidence interval [CI], 48.7 to 65.3) and in 11 participants in the mRNA-1273 group (3.3 per 1000 person-years; 95% CI, 1.7 to 6.0); vaccine efficacy was 94.1% (95% CI, 89.3 to 96.8%; $P < 0.001$). Efficacy was similar across key secondary analyses, including assessment 14 days after the first dose, analyses that included participants who had evidence of SARS-CoV-2 infection at baseline, and analyses in participants 65 years of age or older. Severe Covid-19 occurred in 30 participants, with one fatality; all 30 were in the placebo group. Moderate, transient reactogenicity after vaccination occurred more frequently in the mRNA-1273 group. Serious adverse events were rare, and the incidence was similar in the two groups.

CONCLUSIONS

The mRNA-1273 vaccine showed 94.1% efficacy at preventing Covid-19 illness, including severe disease. Aside from transient local and systemic reactions, no safety concerns were identified. (Funded by the Biomedical Advanced Research and Development Authority and the National Institute of Allergy and Infectious Diseases; COVE ClinicalTrials.gov number, NCT04470427.)

The authors' full names, academic degrees, and affiliations are listed in the Appendix. Address reprint requests to Dr. El Sahly at the Departments of Molecular Virology and Microbiology and Medicine, 1 Baylor Plaza, BCM-MS280, Houston, TX 77030, or at hana.elsahly@bcm.edu; or to Dr. Baden at the Division of Infectious Diseases, Brigham and Women's Hospital, 15 Francis St., PBB-A4, Boston, MA 02115, or at lbaden@bwh.harvard.edu.

*A complete list of members of the COVE Study Group is provided in the Supplementary Appendix, available at NEJM.org.

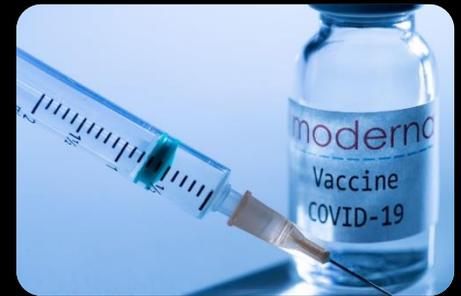
Drs. Baden and El Sahly contributed equally to this article.

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So, in an effort to make it easier to read, I'll try and summarize key points in a bullet format:

- Both vaccines are extremely safe
- Pfizer
 - Age 16 & up / two doses separated by 21 days
 - 95% effective in preventing COVID-19 after two doses
- Moderna
 - Age 18 & up / two doses separated by 28 days
 - 94.1% effective in preventing COVID-19 after two doses
- Both vaccines are messenger RNA (mRNA) vaccines
 - Relatively new approach, but not brand new. Currently used in oncology to treat certain forms of cancer
 - mRNA is a set of instructions surrounded by a protective envelope. Those instructions are used by cells to make parts of the protein spike on the outside of the COVID virus. The body sees the "foreign piece of protein and makes antibodies.
 - mRNA is rapidly broken down by the cell (love 'em and leave 'em)
 - mRNA never enters the nucleus of the cell – meaning it can't alter your genetic material
 - mRNA models are much easier to develop and don't require extensive culturing – thus the shorter time required for development
- Contraindications for both vaccines:
 - severe allergic reaction (e.g., anaphylaxis) after a previous dose of an mRNA COVID-19 vaccine or any of its components
 - immediate allergic reaction of any severity to a previous dose of an mRNA COVID-19 vaccine or any of its components (including polyethylene glycol [PEG])*
 - immediate allergic reaction of any severity to polysorbate (due to potential cross-reactive hypersensitivity with the vaccine ingredient PEG)*
- What about specific patient conditions?
 - Pts who can receive the vaccine but should consult with their physician
 - Cancer / chemotherapy
 - Immunosuppression (either illness or medication)
 - Pregnant patients
 - Lactating patients
 - Pts with a history of Guillain Barre Syndrome
 - Patients with a history of the common cold (just checking to see if you're reading...)



- Bell's Palsy was noted in the study data from both vaccines – However, the incidence of Bell's Palsy in the vaccine group was no greater than the incidence in the general population. It is believed there is no association.
- Patients who have received the vaccine may test positive on viral antigen tests as a result of vaccination, not illness (false positive)
- There appears to be a higher rate of side effects associated with this vaccine (compare to seasonal influenza). Remember, these are considered a normal response to the vaccine. Here's the Moderna side effect profile:

Pain at injection site (92.0%)

Fatigue (70.0%)

Headache (64.7%)

Muscle pain (51.5%)

Joint pain (46.4%)

Chills (45.4%)

Nausea/vomiting (23.0%)

Axillary swelling and tenderness of the vaccination arm (19.8%)

Fever (15.5%)

Injection site swelling (14.7%)

Injection site redness (10.0%)

- You should not receive any other vaccine within 14 days (before or after) COVID vaccination.
- You should not scream like a child when getting the vaccine if anyone can see you.
- You should wait 90 days after recovering from a documented case of COVID before receiving the vaccine (BUT – You should still get the vaccine after that interval)
- Even though you get the vaccine, until this whole adventure is over, you should still wear a mask, practice physical distancing and sanitize your hands frequently. Remember, while the success rate is extremely high, it's not 100%.



- 2nd dose administration can be given up to 4 days early and should be given as soon as possible if the 21 or 28 day specific day is missed
- Vaccines are not interchangeable
- Vaccine vials may be choking hazards (still reading??)
- mRNA vaccines are not recommended for post exposure prophylaxis
- Objects in mirror are closer than they appear. Void where prohibited by law. Offer not available in stores. Consult your physician if I lasts more than 4 hours.

Bottom line – This is a major step forward in making things better. The vaccines (both of them) are safe, they are effective and the side effects are expected and tolerable.

I urge you to get it as soon as it's available for you in your community / group.

This is a Part of Being Better...

So... I have to tell you.

I didn't expect the huge, overwhelming sense of well-being and relief (maybe even a touch more hope and a little more security?) I felt after getting the vaccine. It was a huge step forward in getting through this Charlie Foxtrot.

It was a Part of Being Better.

It won't change my behavior. I'll still wear a mask and physically distance and sanitize my hands. But I have a little more confidence every day.

I was sore, had a headache and was fatigued the past few days.

And I'm fine with it. In my mind, it's analogous to the way your body feels after an intense workout. It's soreness for a purpose.

Please, *please* get your vaccine when you can.

▪ Epilogue...

I wanted to tell you a COVID joke tonight – But I'd have to wait 14 days to see if you got it...

And, unfortunately, with all the nail salons, hair salons, waxing centers and tanning places all closed... It's going to get ugly out there.

Ba dum, dum.

So, that's it from my World. Happy Friday.

I pledged last week that I was going to work really hard this year to Be a Part of Better.

I wrote what I did tonight to try and communicate the best way I can how safe and how important this vaccine is. It's the beginning of a definitive solution to ending the sacrifices and challenges associated with this pandemic. I took the vaccine because I believe in it and I trust the data.

I respect that people may have reservations or concerns given how fast things are happening. I'm hopeful that I helped by sharing the science and instilling a sense of trust in the vaccine and what it can accomplish.

To that end, if I can help anyone with more information, please let me know...

You can email Chip Number 498236504882584730-b in my left arm.

Sorry. Shiny Object.

[I'm going to try and] Be a Part of Better.

Happy Friday.

Ed

Ed Racht, MD
edward.racht@gmr.net

